
तैयार दाल वड़ा बैटर — विशिष्टि

Ready *Dal Vada* Batter —
Specification

ICS 67.230

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FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Ready-to-Eat Foods and Specialised Products Sectional Committee had been approved by the Food and Agriculture Division Council.

Dal Vada is a very popular snack food item in India. The traditional method of making the *dal vada* batter consists of grinding water-soaked black gram *dal* to a thick paste in a wet grinder. The batter is then made into *dal vada* shapes and deep fried to a golden brown colour. In view of the labour involved in making the *dal vada* batter by the traditional method, the use of *dal vada* batter, which eliminates the grinding process has gained popularity. It was therefore, considered desirable to formulate an Indian Standard on specification for this product, so that a *dal vada* batter of the appropriate quality could be available to the consumers.

In the formulation of this standard, due consideration has been given to the provisions of the *Food Safety and Standards Act, 2006* and the Rules and Regulations framed thereunder and the *Legal Metrology (Packaged Commodities) Rules, 2011*. However, this standard is subject to the restrictions imposed under these, wherever applicable.

The composition of the committee responsible for the formulation of this standard is listed in Annex C.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 'Rules for rounding off numerical values (*second revision*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

READY *DAL VADA* BATTER — SPECIFICATION

1 SCOPE

This standard prescribes the requirements and the methods of sampling and test for ready to use *dal vada* batter.

2 REFERENCES

The standards listed in Annex A contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of these standards listed in Annex A.

3 TERMINOLOGY

For the purpose of this standard, following definitions shall apply:

3.1 *Dal Vada Batter* — *Dal Vada* batter shall mean ready to use fermented batter containing soaked decuticled or dehusked black gram or chick pea or green gram in the form of a viscous liquid with added optional ingredients, and fermented either naturally or by adding curd/whey/food grade bacteria and/or yeast culture, intended to be used for preparation of *vada*.

3.2 *Fermented Batter* — Fermented batter is made through desired microbial and enzymatic conversion and activation of food components under control conditions.

4 REQUIREMENTS

4.1 Description

Dal vada batter shall be in the form of a paste, free from rancidity, insect or fungus infestation and from musty or other objectionable odours. It shall also be free from any added synthetic colours and flavours. The ready to use *vada* batter shall be free from dirt and any extraneous matter.

4.2 Ingredients

4.2.1 *Mandatory Ingredients*

Dal vada batter shall be made from the following essential ingredients:

- a) *Black gram dal paste* — Black gram *dal*

paste shall be made from soaked decuticled/dehusked and ground to fine paste of desired consistency; and

- b) *Potable water* — Conforming to IS 10500.

4.2.2 *Optional Ingredients*

Dal vada batter may also contain following ingredients:

- a) Edible salt — Conforming to IS 7224;
- b) Other cereals including millets, pulses and legumes;
- c) Edible vegetable oil and fats or their products;
- d) Spices and condiments;
- e) Dehydrated vegetables;
- f) Dried coconut products;
- g) Nuts; and
- h) Oilseeds.

4.2.3 All ingredients shall be food grade, free from dirt, extraneous matter and insect infestation.

4.3 Food Additives

Dal vada batter may contain permitted food additives and at levels as specified in *Food Safety and Standards (Food Products Standards and Food Additives) Regulations, 2011*.

4.4 Processing

Dal vada batter is made by grinding soaked black gram *dal* and optional cereals separately in a wet grinder. These pastes should be then mixed with the other optional ingredients in appropriate proportions and keeping the resultant product for desired time period to ferment depending on the prevailing ambient temperature. No further fermentation of *dal vada* batter should be required at the time of *dal vada* preparation.

4.5 The pH of *dal vada* batter shall be in the range of 5.4 to 5.8.

4.6 *Dal vada* batter shall be manufactured and packed in premises maintained in hygienic conditions (see IS 2491).

4.7 *Dal vada* batter shall comply with the requirements given in Table 1 and Table 2.

4.7 The metal contaminants and other toxic substances, if any, in the product shall not exceed the limits specified in Table 3.

4.8 The pesticide residues, if any, in the product shall not exceed the limits as prescribed in the *Food Safety and Standards (Contaminants, Toxins and Residues) Regulations*, 2011.

5 PACKING

5.1 *Dal vada* batter shall be packed in flexible thermoplastic films of multilayer construction, or their laminates with paper so as to provide high resistance to the passage of oxygen and to produce an effective heat seal. The plastic used in packaging of product should comply with IS 10171. The sealing shall be done hermetically with or without nitrogen flushing to retain the contents in a fresh condition. The packaging material shall be food grade non-reactive, non-transparent, water-resistant, and impermeable to carbon dioxide and other gases.

5.2 The packed product shall be kept under refrigerated conditions (8 °C or below) till usage.

6 MARKING

6.1 Each container shall be legibly and indelibly marked so as to give the following information:

- Name of the material;
- Name and address of the packer/manufacturer;
- Date of packing;
- Lot/batch number;
- Net quantity;
- Date before which the contents should be consumed be indicated by marking the

words 'Use by date/expiry date(DD/MM/YY)'

- Storage instructions (including use by date after opening the package);
- Directions for use; and
- Any other information required under the *Legal Metrology (Packaged Commodities) Rules*, 2011, and *Food Safety and Standards (Labelling and Display) Regulations*, 2020.

6.2 BIS Certification Marking

The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act*, 2016 and the Rules and Regulations framed thereunder, and the products may be marked with the Standard Mark.

7 SAMPLING

Representative samples of the material shall be drawn and the conformity of the material to the requirements of the specification shall be determined according to the procedure given in Annex F of IS 18246.

8 TESTS

8.1 Tests shall be carried out in accordance with col (4) of Table 1, Table 2 and Table 3.

8.2 Quality of Reagents

Unless specified otherwise, chemicals of analytical grade shall be employed in tests and distilled water (see IS 1070) shall be used where the use of water as a reagent is intended.

Table 1 Physico-Chemical Requirements for *Dal Vada* Batter
(Clauses 4.7 and 8.1)

Sl No.	Characteristic	Requirement	Method of Test, Ref to
(1)	(2)	(3)	(4)
i)	Moisture, percent by mass, <i>Max</i>	55.0	Annex A of IS 18246
ii)	Titration acidity, percent by mass	0.2 to 0.7	IS 13844
iii)	Total ash, percent by mass (dry basis), <i>Max</i>	4.0	Annex B of IS 18246
iv)	Acid insoluble ash, percent by mass (dry basis), <i>Max</i>	0.15	Annex C of IS 18246

Table 1 (Concluded)

Sl No.	Characteristic	Requirement	Method of Test, Ref to
(1)	(2)	(3)	(4)
v)	Total protein, percent by mass (dry basis), (N x 6.25), <i>Min</i>	20.0	Annex D of IS 18246
vi)	Total fat, percent by mass (dry basis), <i>Max</i>	2.0	IS 11721
vii)	Dietary fibre, percent by mass (dry basis), <i>Min</i>	1.0	IS 11062
viii)	Carbohydrates, percent by mass (dry basis), <i>Max</i>	75.0	see Note

NOTE — The carbohydrate content shall be calculated by difference, that is, 100 – [percent of protein (dry basis) + percent of fat (dry basis) + percent of total ash (dry basis) + percent of dietary fibre (dry basis)].

Table 2 Microbiological Requirements *Dal Vada Batter*
(Clauses 4.7 and 8.1)

SI No.	Characteristic	Requirement				Method of Test, Ref to ²⁾
		Sampling Plan ¹⁾				
		<i>n</i>	<i>c</i>	<i>m</i>	<i>M</i>	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
i)	<i>Staphylococcus aureus</i> count (cfu/g)	5	2	10 ²	10 ³	IS 5887 (Part 8/Sec 1* or 2)
ii)	<i>Enterobacteriaceae</i> count (cfu/g)	5	2	10 ²	10 ³	IS 17112 (Part 2)

1) For sampling plan see Annex B.

2) In case of any dispute, the method indicated by ‘*’ shall be the referee method

Table 3 Limits of Metal Contaminants and Other Toxic Substances
(Clauses 4.8 and 8.1)

Sl No.	Parameters	Limit	Method of Test, Ref to
(1)	(2)	(3)	(4)
i)	Lead, mg/kg, <i>Max</i>	0.1	IS 12074 or AOAC 2015.01*
ii)	Cadmium, mg/kg, <i>Max</i>	0.06	15 of IS 1699 or AOAC 2015.01*
iii)	Total aflatoxin, µg/kg, <i>Max</i>	5.0	IS 16287

NOTE — In case of any dispute, the method indicated by '*' shall be the referee method.

ANNEX A

(Clause 2)

LIST OF REFERRED STANDARDS

<i>IS No./Other Publications</i>	<i>Title</i>	<i>IS No./Other Publications</i>	<i>Title</i>
IS 1070 : 1992	Reagent grade water — Specification (<i>third revision</i>)	IS 11062 : 2019	Method for estimation of total dietary fibre in foodstuffs (<i>first revision</i>)
IS 1699 : 1995	Methods of sampling and test for food colours (<i>second revision</i>)	IS 11721 : 2013/ ISO 1736 : 2008	Dried milk and dried milk products — Determination of fat content — Gravimetric method (reference method) (<i>second revision</i>)
IS 2491 : 2013	Food hygiene — General principles — Code of practice (<i>third revision</i>)	IS 12074 : 1987	Method for determination of lead by atomic absorption spectrophotometer
IS 5887	Methods for detection of bacteria responsible for food poisoning	IS 13186 : 1991	Citric acid, food grade — Specification
(Part 1) : 1976	Isolation, identification and enumeration of <i>Escherichia coli</i> (<i>first revision</i>)	IS 13844 : 2003/ ISO 750 : 1998	Fruit and vegetable products — Determination of titratable acidity (<i>first revision</i>)
(Part 3/Sec 1) : 2020/ISO 6579-1 : 2017	Horizontal method for the detection, enumeration and serotyping of <i>Salmonella</i> , Section 1 Detection of <i>Salmonella</i> spp. (<i>third revision</i>)	IS 16287 : 2015/ ISO 16050 : 2003	Foodstuffs — Determination of aflatoxin B1, and the total content of aflatoxins B1, B2, G1 and G2 in cereals, nuts and derived products high performance liquid chromatographic method
(Part 7) : 1999	General guidance on methods for isolation and identification of <i>shigella</i>	IS 18246 : 2023	Ready <i>idli</i> batter — Specification
IS 7224 : 2006	Iodized salt, vacuum evaporated iodized salt and refined iodized salt — Specification (<i>second revision</i>)		
IS 10500 : 2012	Drinking Water — Specification (<i>second revision</i>)		

ANNEX B
(Table 2)

SAMPLING PLAN FOR MICROBIOLOGICAL REQUIREMENTS

B-1 SAMPLING PLAN FOR MICROBIOLOGICAL REQUIREMENTS

The terms n , c , m and M used in this standard have the following meaning:

- n = Number of units comprising a sample;
 c = Maximum allowable number of units having microbiological counts above m for 2-class sampling plan and between m and M for 3-class sampling plan;

- m = Microbiological limit that separates unsatisfactory from satisfactory in a 2-class sampling plan or acceptable from satisfactory in a 3-class sampling plan; and
 M = Microbiological limit that separates unsatisfactory from satisfactory in a 3-class sampling plan.

B-2 INTERPRETATION OF RESULTS

<i>2-Class Sampling Plan (where n, c and m are specified)</i>	<i>3-Class Sampling Plan (where n, c, m and M are specified)</i>
1) Satisfactory, if all the values observed are $< m$	1) Satisfactory, if all the values observed are $\leq m$
2) Unsatisfactory, if one or more of the values observed are $> m$ or more than c values are $> m$	2) Acceptable, if a maximum of c values are between m and M and the rest of the values are observed as $\leq m$
	3) Unsatisfactory, if one or more of the values observed are $> M$ or more than c values are $> m$

ANNEX C

(Foreword)

COMMITTEE COMPOSITION

Ready-to-Eat Food and Specialized Products Sectional Committee, FAD 24

<i>Organization</i>	<i>Representative(s)</i>
National Institute of Food Technology Entrepreneurship and Management, Sonipat	DR ASHUTOSH UPADHYAY (Chairperson)
Agricultural & Processed Food Products Export Development Authority (APEDA), New Delhi	DR REEBA ABRAHAM
All India Food Processors Association, New Delhi	DR VAIBHAV KULKARNI DR A. K. TYAGI (<i>Alternate</i>)
Central Food Technological Research Institute, Mysore	DR P. PRABHASANKAR DR JYOTHI LAKSHMI (<i>Alternate</i>)
CONCERT, Chennai	MS NIRMALA DESIKAN MS R. KALYANI (<i>Alternate</i>)
Confederation of Indian Food Trade & Industry, New Delhi	DR JASVIR SINGH MS VARSHA YADAV (<i>Alternate</i>)
Consumer Voice, New Delhi	SHRI M.A.U KHAN
CSIR — Indian Institute of Toxicology Research, Lucknow	DR KAUSAR M. ANSARI DR SANDEEP SHARMA (<i>Alternate</i>)
Defense Food Research Laboratory, Mysore	DR R. KUMAR DR R. SHYLAJA (<i>Alternate</i>)
Food Safety & Standards Authority of India, New Delhi	MS RUBY MISHRA
Haldiram Snacks Pvt Ltd, Noida	SHRI RAVI MEHTA
ICAR — Central Institute of Post-Harvest Engineering & Technology, Ludhiana	DR RAHUL ANURAG DR VIKAS KUMAR (<i>Alternate</i>)
Indian Confectionery Manufacturer Association, Noida	SHRI PRABHAKAR MISRA
ICAR — National Dairy Research Institute, Karnal	DR P. NARENDRA RAJU DR NEELAM UPADHYAY (<i>Alternate</i>)
ICMR — National Institute of Nutrition, Hyderabad	DR K. V. RADHAKRISHNA DR V. SUNDERSHAN RAO (<i>Alternate</i>)
Indian Institute of Packaging, Mumbai	DR TANWEER ALAM SHRI PON KUMAR (<i>Alternate</i>)
Indian Institute of Technology, Kharagpur	DR H. N. MISHRA
McCain Foods (India) Pvt Ltd, New Delhi	MS TINU SHARMA SHRI VIKAS KAUSHIK (<i>Alternate</i>)

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National Dairy Development Board, Anand	SHRI ADITYA JAIN DR JITENDER SINGH (<i>Alternate</i>)
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Nestle India Ltd, Gurgaon	SHRI ISWARYA MANI
Protein Foods & Nutrition Dev Association, Mumbai	DR SHASHANK BHALKAR DR SHATADRU SENGUPTA (<i>Alternate</i>)
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BIS Directorate General	SHRIMATI SUNEETI TOTEJA, SCIENTIST 'E'/DIRECTOR AND HEAD (FOOD AND AGRICULTURE) [REPRESENTING DIRECTOR GENERAL (<i>Ex-officio</i>)]

Member Secretary
MS LAVIKA SINGH
SCIENTIST 'B'/ASSISTANT DIRECTOR
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Panel for Ready-to-Eat Batters & Mixes, FAD 24/Panel III

<i>Organization</i>	<i>Representative(s)</i>
ICAR-Central Institute of Post Harvest Engineering & Technology (CIPHET), Ludhiana	DR MRIDULA DEVI (<i>Convenor</i>)
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